Predictors of Outcomes of Non-Surgical Management for Acetabular Labral Tears

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Objectives: Acetabular labral tears are increasingly recognized as a source of hip pain in the younger, active population. Due to a significant focus on surgical intervention, there has been limited investigation on the predictive factors and natural history of non-surgical management of these injuries. Many reports recommend a trial of non-operative management with a variety of modalities including physical therapy, education, non-steroidal anti-inflammatories (NSAIDs), intra-articular injections, and activity modification. However, there is limited data supporting these claims as few studies have explored non-surgical management. Additionally, the authors were not able to find any studies on factors that portend outcomes of non-operative management. We hypothesized that patients with more significant bony FAI pathology or more severe osteoarthritis would have poorer outcomes.
Methods: Eighty patients with acetabular labral tears, confirmed by MRI, receiving a minimum of one year of non-surgical management were identified. Subjects completed baseline patient reported outcome measures (PROMs: mHHS, HOS-ADL, HOS-SS, iHOT-33). Sixty five (81.25%) patients completed the same one-year follow-up functional outcomes measures in addition to a satisfaction questionnaire (37F, 28M). Chart review was conducted to obtain demographic information and radiographic information (Tonnis grade, alpha angle, center edge angle, chondral damage, cartilage defects, cysts, and subchondral edema). Statistical significance (p<0.05) was determined t-test, anova, or Wilcoxon rank-sum.
Results: Average follow up time was 24 months (R:18-30). The mean age was 41.7(R:18-57), average BMI was 26.2 (R18-39), and average Tonnis grade was 0.6 (R0-2). At follow-up, overall patients experienced a significant improvement in functional outcomes (mHHS: 66.6 vs 75.18, HOS-ADL: 75.7 vs 85.8, HOS-SS: 54 vs 69.7, iHOT-33: 47.9 vs 65.4). There was a positive correlation between baseline PROMs and follow-up PROMs as well as a negative correlation between baseline PROMs and change in PROMs over time. Tonnis grade, chondral damage, and cartilage defects portended significantly worse outcomes across all PROMs at follow-up. Presence of cysts or subchondral edema was also correlated with worse outcomes but these findings did not reach statistical significance. (Table 2). Alpha angle >55 (cam lesion) resulted in significantly worse outcomes across all PROMs although CEA>40 (pincer lesion) only reached significance for the HOS ADL and SSS. CEA< 25 (dysplasia) trended toward worse outcomes but did not reach significance. (Table1)
Conclusion: Due to the limited healing potential of the labrum, the associated anatomical defects of FAI, and the potential for progression to osteoarthritis, there has been a focus on surgical intervention for FAI and labral tears. Despite a lack of evidence for its use, non-surgical management is frequently cited as the first step to treatment. As we found in a previous analysis, patients with symptomatic labral tears can experience functional improvement after minimum one year of non-surgical management. Those with signs of higher grade arthritis performed significantly worse that their less arthritic counterparts. Those with larger cam and pincer lesions also improved less than patients with less significant bony morphology. This study can help inform surgeons and their patients when they present with hip pain and inquire about non-surgical management.

Change in patient reported outcome measures from baseline to follow-up for osseous morphology								
	mHHS	P Value	HOS-ADL	P Value	HOS-SSS	P Value	iHOT-33	P value
CEA<25		0.4814		0.0751		0.1214		0.3223
No	9.0 (14.8)		11(19)		17(30)		18(25.4)	
Yes	3.8(14.6)		-5(13)		-2(22)		11.3(12.1)	
CEA>40		0.0684		0.0185		0.0216		0.0838
No	10(14.7)		12(19)		19(30)		20(24)	
Yes	0.9(13.2)		1(12)		-2(22)		3.8(25.2)	
Alpha>55		0.0001		0.0079		0.001		0.0001
No	12.1(14.1)		13(19)		21(29)		25.1(20.6)	
Yes	-4.0(9.0)		-1(14)		-4(20)		-10.4(17.2)	

Change in patient reported outcome measures from baseline to follow-up for cartilage status								
	mHHS	p value	HOS-ADL	p value	HOS-SSS	p value	iHOT-33	p value
Edema		0.0945		0.8995		0.8333		0.1312
No	10.2 (14.4)		10 (20)		16 (28)		20.4 (21.9)	
Yes	1.8 (14.7)		10 (14)		14 (37)		4.6 (32.5)	
Cartilage Degeneration		0.0001		0.0001		0.0001		0.0001
No	18.0 (9.1)		19(17)		29(27)		31.7(17.0)	
Yes	-5.4(9.4)		-3(12)		-4(22)		-4.0(17.9)	
Cartilage Defect		0.0001		0.0009		0.0089		0.0002
No	12.0(13.3)		14(18)		20(28)		22.7(22.9)	
Yes	-6.4 (11.2)		-6 (11)		-5 (26)		-5.9 (18.4)	

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